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FEEDBACK PRINCIPLES FOR COMMAND GROUP TRAINING(U) ARMY
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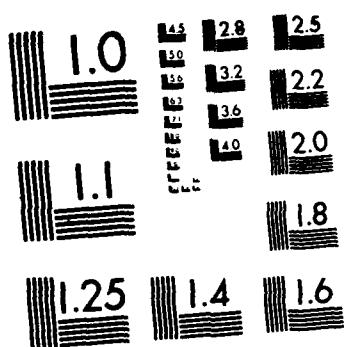
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Research Report 1459

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Feedback Principles for Command Group Training

Delane K. Garlinger

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ARI Field Unit at Fort Leavenworth, Kansas Systems Research Laboratory



U. S. Army

Research Institute for the Behavioral and Social Sciences

December 1987

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The simplified guidelines for the implementation of feedback in command group training, which are provided in this report, are intended to aid those responsible for planning and executing command group training in identifying feedback variables which will enhance training effectiveness without an unrealistic imposition upon available resources. <i>Keywords: Army Training</i>			
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Research Report 1459

Feedback Principles for Command Group Training

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FOREWORD

The Fort Leavenworth Field Unit of the Army Research Institute for the Behavioral and Social Sciences supports the Combined Arms Center with research and development on combined arms operations and command group training.

This report represents one part of a larger project referred to as staff training assessment and feedback (STAF). The goal of the STAF project is to develop a set of procedural guidelines for tailoring diagnostic performance measures to a staff training exercise. This is an exploratory development effort under ARI Research Task 1.3.3., Improved Methods for Command Group Training. As such, it is intended to develop the tools and techniques needed for translating measurement expertise from the laboratory to the field. This report documents feedback principles for enhancing command group training. The contents of this report have been briefed to the Director, Battle Command Training Program, and the Project Manager for Training Devices.



EDGAR M. JOHNSON
Technical Director



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FEEDBACK PRINCIPLES FOR COMMAND GROUP TRAINING

EXECUTIVE SUMMARY

Requirement:

The objectives of this report are to (1) provide guidelines for feedback in command group training (CGT), (2) provide empirical support for feedback guidelines, and (3) identify feedback principles that impose specific requirements for the collection of performance measures.

Procedures:

The literature on feedback principles was reviewed. Principles for which there is research support and which appeared to have the potential to add substantially to the effectiveness of CGT without imposing cumbersome problems of implementation were identified and discussed.

Findings:

Principles that provide the basis for guidelines for the implementation of feedback in command group training were identified. In addition, the feedback principles that present performance measurement requirements were discussed in the context of command group training.

Utilization of Findings:

This report presents simplified guidelines for the implementation of feedback in command group training. These guidelines will provide those responsible for planning and executing command group training with usable information on feedback. Implementation of these guidelines should enhance training effectiveness without unrealistic impositions on available resources.

FEEDBACK PRINCIPLES FOR COMMAND GROUP TRAINING

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FEEDBACK PRINCIPLES FOR COMMAND GROUP TRAINING

Introduction

Army commanders and their staff groups must be capable of performing their command and control (C^2) functions at a high level of proficiency to ensure that the tenets of airland battle doctrine work. Staff groups train in a variety of modes such as command post exercises (CPX) and command field exercises (CFX). Training of corps and division staffs occurs only about twice a year because of the high costs incurred for high echelon training and time demands for these echelons to run garrison operations and to conduct training for subordinate units. Since the command group's proficiency in C^2 operations is so vital to battlefield performance and the opportunity for training is relatively infrequent, it is imperative to maximize the benefits derived from every training exercise.

Over the years, studies concerning learning and performance have arrived at the predominant conclusion that feedback affects performance and learning in a positive manner (Downs, Johnson, & Barge, 1984). Furthermore, feeding information about performance back to individuals and task groups has come to be considered one of the most important variables impacting upon learning (Cusella, 1980). In the area of command group training (CGT), research has shown that the effectiveness of training can be improved by providing extrinsic feedback on performance (Thomas, Kaplan, & Barber, 1984). Based upon this body of research, recommendations were made for incorporating feedback into the training process through the after action review (AAR) process (Kaplan & Fallesen, in press). However, wide variation in the use of sound feedback principles in conducting the AAR has been found (Downs, Johnson, & Fallesen, in press). At present, the AAR consists of general observations concerning the conduct of the battle, which provides the staff with little objective feedback concerning how well or how poorly their individual and collective tasks were performed. Effective extrinsic feedback requires that performance measurement data be systematically collected throughout the training exercise. This will supply the information required to provide the training audience with feedback to reinforce strengths and identify weaknesses.

The purposes of this paper are: (1) to provide guidelines for feedback in CGT, (2) to present empirical support for feedback guidelines, and (3) to identify feedback principles which impose specific requirements for the collection of performance measures.

This report is not intended to provide exhaustive coverage of feedback principles but rather to identify and discuss those for which research support was found in the literature, and which appeared to have the potential to add substantially to the effectiveness of CGT without posing cumbersome problems for implementation. Also, even though it is recognized that individual difference variables, such as self-esteem, locus of control, and need for achievement

influence the way feedback is perceived and used by the recipient, these variables are not included in this review of feedback principles as it would be impractical to consider such variables in developing guidelines for feedback in command group training.

In order to make this report more usable by staff officers, or others responsible for training, the guidelines for providing feedback will be presented first, followed by a review of the research literature which constitutes the foundation on which the guidelines were developed.

Guidelines for the Integration of Feedback Into Command Group Training

The purpose of this section is to provide simplified "who, what, and when" guidelines for the implementation of feedback into command group training. These guidelines are based upon a review of the research literature pertaining to feedback principles which is discussed in the next section of this paper.

Who should receive feedback? All members of the designated training audience for any training exercise should receive feedback on performance, whether the purpose is to train the full staff or only selected staff sections or elements.

Each individual being trained should receive personal feedback information concerning the performance of tasks related to his individual goals or training objectives. In addition, the whole staff or staff section should receive feedback as a group concerning their collective performance.

Who should present feedback? Careful consideration should be given to the selection of the individual(s) who will present feedback to the training audience. Ideally, the person who presents the feedback information should hold a rank equal to or higher than the individuals who will receive the feedback. However, the most important characteristic of the feedback presenter is that he be capable of projecting confidence and competence in the subject area in which he will be providing feedback. In addition, the presenter must be able to interact with the training audience in such a way as to instill in them the belief that he is trustworthy and non-threatening, and that the feedback is provided to help them improve in their performance rather than for punitive reasons.

Joseph Olmstead (1968) has published a guide to performance counseling for instructors. Although the guide is written for the classroom instructor, it offers many valuable pointers which could be applied by anyone presenting feedback in a training situation. In addition, the guide contains an annotated bibliography of other publications which could be useful to individuals responsible for presenting training feedback.

When should feedback be presented? In command group training environments, feedback should be provided at the completion of each exercise, or at logical breakpoints within an exercise. It is important that the training audience be able to relate the feedback to specific incidents or behaviors. This becomes

more difficult as time elapses between the behaviors and feedback. The passing of time also increases the probability that other activities will intervene and interfere with memory of the relevant behaviors. As a rule of thumb, feedback should be provided as soon as possible without disrupting the flow of the exercise, but trainees should never proceed to a new exercise or battle until they have received feedback from the previous exercise.

What should the feedback message contain? As discussed in the research review section of this paper, the feedback message presented to trainees should provide specific feedback directed towards specific goals or training objectives, which are established prior to training. It probably matters little whether trainees establish their individual goals or whether they participate with the commander or other staff members on this issue. What is important is that each individual have some role in the establishment of performance goals, and that feedback provide information directly relevant to the achievement of those goals. In addition, vague and general statements about performance should be avoided. Instead, the trainee should be provided with specific support for the feedback. Including examples of incidents and behaviors in the feedback message aids the trainee in understanding the reasons for the feedback and what is necessary to improve performance.

Although it is a human tendency to avoid giving negative feedback to another person, in a training situation it is important for the training audience to receive a total picture of their performance - both good and not so good. This means that the feedback message must contain both positive and negative aspects of performance, as appropriate. However, any external factors which could have contributed to an individual's poor performance should be recognized and discussed at the time the feedback is presented. In addition, any negative feedback should be accompanied by a discussion of alternative courses of action to correct "mistakes" in the future, as well as information such as type, extent and direction of errors which will help him focus his efforts in future training exercises.

Although normative data is currently rarely available concerning command group performance, it is helpful, whenever such information is available, to provide members of the training audience with some information concerning how well he has performed his tasks in relation to how well others have performed the same tasks. This will provide a "bench mark" against which to judge his performance.

Finally, feedback messages should contain elements of praise for tasks done well and encouragement that future performance can be better. Praise and encouragement are effective motivators and should be used liberally.

In summary then, individual and group feedback should be provided to all members of the training audience as quickly as possible. It should provide specific information, both positive and negative, relevant to specific goals. The feedback should be supported by examples of behavior and provide information concerning the nature, direction, and extent of errors. Praise and encouragement should be used liberally to enhance motivation. The feedback should be delivered by an individual who is perceived by the trainees as competent in the subject area, and who is trustworthy and non-threatening.

Empirical Support for Feedback Guidelines

The feedback process is very complex and its effect upon performance is influenced by such mediating factors as source, message, and recipient variables. To aid in the clarification of the inter-relationships of these intermediate variables in the feedback process, Ilgen, Fisher, & Taylor (1984) have developed a model of the processes through which feedback affects an individual's performance. This model is presented in Figure 1.

This model divides the individual's processing of feedback into several stages: perception of feedback, acceptance of feedback, belief in response capability, and intended response. The model also reflects the constraints upon the ability to respond which may intervene between the intended response and the actual response. This paper will be organized into sections which review research findings relevant to several of the stages contained in the model of Ilgen, et al.

Perceived Feedback

A common assumption is that the feedback recipient receives the identical message that the feedback source intends to convey. This assumption is often in error (Ilgen, Dugoni, Mattee, Fisher, & Taylor, 1984). The feedback message can be transformed by the perception of the recipient. This is especially true when the feedback message is vague and invites individual interpretation. However, in order to impact beneficially on future performance, the feedback message must be received accurately by the recipient. The following variables may affect how accurately the recipient perceives the feedback message.

Timing: Timing refers to the time interval between the individual's behavior or performance and the receipt of feedback about that performance. In order to correctly perceive the feedback as being related to the target behavior, the individual must be able to pair or associate the feedback message with the past behavior. In general, the longer feedback is delayed the less likely it is to affect performance since the delay acts to decrease the probability that the individual will associate the past behavior with the feedback message. This is especially true when activities which intervene between performance and feedback interfere with the recipient's ability to accurately recall the behavior in question.

If feedback is to be useful in CGT, it must be presented during or immediately following the completion of a training session. This presents a real challenge to any potential CGT performance measurement method as most existing manual (non-automated) methods are labor intensive and require the "clean-up" of raw data and the possible weighting or aggregation of several measures to develop composite performance scores. The development of automated performance measures, or automated aids for collecting, scoring, and analyzing performance appear to offer the greatest hope for obtaining good performance measures in a timely manner.

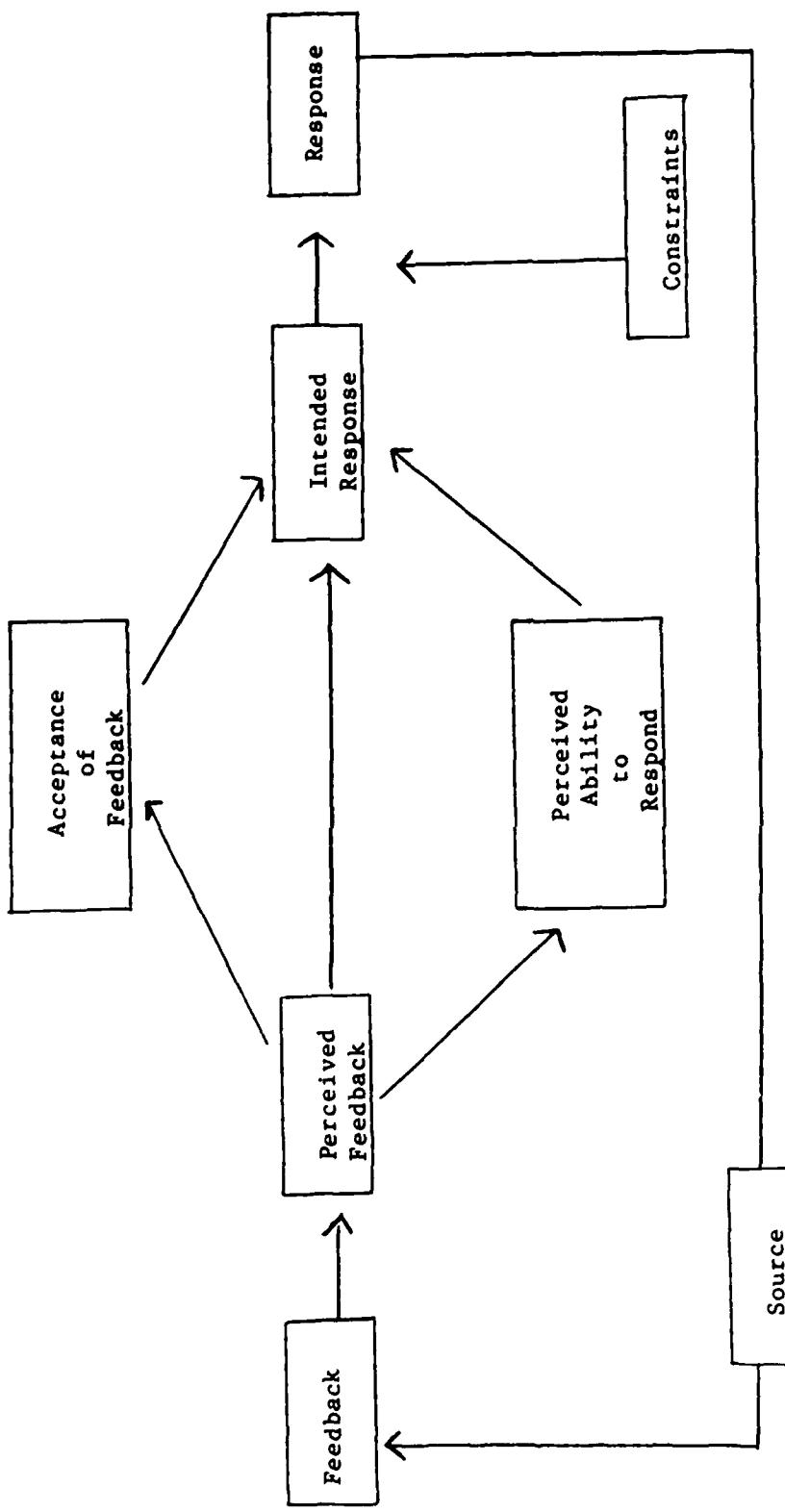


Figure 1. Model for the effects of performance feedback on the individual's response.
 (Ilgen, Fisher, & Taylor, 1984).

Positive versus Negative Feedback: Research on feedback has shown that the sign of the feedback message (positive or negative) is a compelling variable in regards to an individual's perception of the message (Ilgen, Fisher, & Taylor, 1984). Even though the general conclusion is that positive feedback is more readily and accurately perceived than negative feedback, possible moderating effects have been identified which condemn the practice of providing only positive feedback, and mitigate the resistance individuals display when presented with negative feedback.

According to Nadler (1979), perception difficulties arise because negative feedback: (a) promotes defensive feelings; (b) raises aspirations less than positive feedback, (c) leads to attributions of external causes on the part of the recipient; and (d) leads to distortions of the feedback message.

However, as pointed out by Pritchard & Montagno (1978), since positive feedback deals with correct behavior, and negative feedback deals with incorrect behavior, furnishing recipients with only positive feedback provides only partial information. Nothing is learned about where improvement is needed most - on those behaviors being performed incorrectly or to a low degree of proficiency. In keeping with this view, DeNisi, Randolph, & Blencoe (1982) concluded, after investigating positive and negative feedback, that improved performance is best facilitated by both positive and negative feedback as dictated by performance. This provides the recipient with reinforcing information about what he is doing correctly as well as diagnostic information about where improvement is needed.

Perhaps negative feedback could be more readily received if the message is presented in a manner which would minimize the individuals tendency to react defensively. Jacobs, Jacobs, Feldman, & Cavior (1973) found that although positive feedback was generally viewed by recipients as more credible than negative feedback, credibility of negative feedback increases when presented in terms of specific behaviors.

Another factor examined by researchers is the role that performance attribution plays in perception of positive and negative feedback. An important part of the evaluation process is the attempt by both the evaluator (feedback source) and the recipient to explain why a particular performance outcome occurred. However, a large body of research points to perceptual differences between the source and recipient which lead to different explanations concerning why the performance occurred. The source generally attends to the recipient's behavior rather than the situational constraints on performance, whereas the recipient is perpetually attuned to the situational constraints on his performance (Bannister, 1986). Therefore, a conflict may arise between the source's and the recipient's assessment of the causes of performance. Bannister found that within positive and negative feedback conditions, the same outcome followed by attribution to either external or internal causes was interpreted by recipients in a quite different manner. An initially positive performance outcome followed by external attributional feedback is likely to be viewed as negative feedback by the recipient. Likewise, an initial negative performance outcome combined with external attribution may be viewed by the

recipient as positive feedback. This points to the strong undermining effects of external attributions on otherwise positive feedback and the strong mitigating effect of external attributions on otherwise negative feedback.

Individual versus Group Feedback: This issue, which is concerned with whether it is best to provide feedback pertaining to the performance of individuals or the performance of the entire group, is a special problem in the area of team or group training. In such situations, there is experimental evidence (Klaus & Glaser, 1968) that when only group feedback is provided, individuals may strive to stabilize inappropriate behavior in the mistaken belief that these behaviors are actually contributing to the success of the team. On the other hand, feedback to the group as a whole, especially on tasks requiring that individuals perform interdependently, serves to increase group cohesion and improve group members' motivation on the interdependent task (Berkowitz & Levy, 1957; Nadler, 1979). Therefore, what is needed in such cases is some direct feedback provided to each separate team member concerning his own actions, together with feedback to the team as a whole concerning team performance (Bryan & Regan, 1972).

Acceptance of Feedback

Even though a feedback message may be accurately perceived by the recipient, this does not insure that the appropriate response will follow. One of the intermediate steps between perception of the message and response is the recipient's acceptance of the message. Acceptance involves the individual's belief that the feedback message is meaningful and accurately represents his performance. Acceptance of the feedback message is influenced by a number of variables, such as those related to characteristics of the source of the feedback message, those related to characteristics of the message itself, and the relationship of the feedback messages to goals established prior to training.

Source: A prerequisite for acceptance of the feedback message is a belief on the part of the recipient that the feedback is reasonable and credible. One important dimension of source credibility is trust, which is based upon the recipient's belief about the source's intentions. If the source is perceived as intending the feedback to be instructional and non-threatening, the feedback is more likely to be accepted. The research evidence indicates that the feedback message is likely to be accepted if the recipient trusts the source and is satisfied with communication with the source (Hasner & Muchinsky, cited in Downs, Johnson, & Barge, 1984).

Based upon their extensive review of the feedback literature, Ilgen, Fisher, & Taylor (1979) concluded that the source's knowledge of the recipient's task and performance is also important if the feedback is to be accepted. Research evidence supports the idea that the more the source is perceived as qualified to give feedback, the greater the tendency to accept the feedback (Landy, Barnes, & Murphy, 1978; Cusella, 1982). Furthermore, Halperin, Snyder, Shenkel, & Houston (1976) found that high and medium status sources were much

more credible to feedback recipients than low status sources. This research also indicated that negative feedback was credible to recipients if it came from a high status source.

The power of the source is another dimension which impacts upon the recipients acceptance of the feedback message and willingness to respond to it. Power is defined as the ability of the source to control the individual's rewards. A high power source would influence the contingency between the recipient's behavior and his or her valued outcome, such as promotions, raises, etc. A low power source, conversely, would have little influence on such outcomes. Although this dimension has not been examined through research, Ilgen, Fisher, & Taylor (1984), hypothesize that the more the source is seen to control valued outcomes, the more likely it is that the recipient will accept, or at least try to respond to, feedback from that source.

Message Characteristics: In order for the recipient to accept feedback as credible, it must be consistent. Nichols (1975) found that when feedback messages on a specific task were inconsistent the recipients attributed their performance to luck rather than to their own efforts or abilities. According to Ilgen, Fisher, & Taylor (1984) in order for feedback to be effective, recipients must believe that they are in control of their performance, rather than being under the control of external factors. In the absence of consistent feedback, the recipients attribute performance to external factors and are not likely to respond to the feedback message based on the belief that no action on their part will influence the erratic performance.

In order to provide the necessary feedback consistency, measures of performance must be reliable. A measure which has low reliability cannot provide the stability of information required for recipients to develop confidence that the feedback reflects their true performance.

Another characteristic of the feedback message which affects the recipient's acceptance is the inclusion of specific support for the feedback (Leskovec, 1967). Feedback messages containing only vague or general statements should be avoided. Including specific incidents and behavioral references aids the message recipient in understanding the reasons for the feedback. Reference to such specific incidents and behaviors gives the recipient specific knowledge to use as a basis for making the necessary changes to improve performance, as well as making the feedback harder to deny or reject.

Goal Setting: The literature concerning feedback indicates that a complementary relationship exists between feedback and goal setting in many situations. Research results confirm that performance is improved through a combination of training, goal setting and feedback to a greater extent than when training, goal setting, or feedback is used alone (Chhokar & Wallin, 1984). However, research attempting to determine the source of goals which is most effective in promoting improved performance is somewhat contradictory. Some research indicates that goals assigned by external sources promote higher levels of performance than goals which are generated by the individual (Ivancevich & McMahon, 1982, cited in Downs, et al, 1984). Other research suggests that assigned goals are effective only to the degree to which they are accepted by the individual (Pritchard, et al, 1981). However, Ilgen, et al

(1979) concluded after their review of the feedback literature, that when the individual participates in goal setting, his perception of control over his performance and acceptance of feedback is enhanced.

One point about which the research is in general agreement is the fact that feedback in conjunction with goals is much more effective than feedback alone. As Becker (1978) pointed out, "If a person has no goal, no level of performance that he or she wants to achieve, feedback is irrelevant." Furthermore, there is strong empirical evidence for the conclusion that specific goals increase performance to a greater extent than general goals, and that difficult goals, if accepted by the individual, result in better performance than easy goals (Pritchard, et al 1981).

As discussed earlier in this paper, feedback is also most effective when it is specific rather than general. Ilgen, et al (1979) conclude that the specificity of feedback interacts with the specificity of goals. They suggest that the best condition for maximizing performance is the combination of specific goals with specific feedback, so that the individual receives information that allows a clear evaluation of performance with respect to goals. Table 1 depicts the relationship between goal specificity and feedback specificity.

Table 1.

Relationships of Specificity of Goals and Specificity of Feedback.*

		Goals	
		Specific	General
Feedback	Specific	Feedback is easily understood and applied to performance.	Performance evaluation is uncertain.
	General	Recipient applies general feedback, perhaps inappropriately, to specific goal units.	Feedback is difficult for recipient to interpret and apply.

*Adapted from Ilgen, Fisher, & Taylor, (1979).

Belief in Response Capability

The principal concept associated with this step of the feedback process is the recipient's expectancy that he will be capable of responding to the feedback in a manner that will lead to the desired level of performance. If people do not believe they have the ability to improve performance, it is unlikely they will put forth effort attempting to do so.

Task Difficulty Information: One of the variables which research has shown to impact on the recipient's belief concerning his ability to respond is task difficulty information in the feedback message. Research by Feather (1968) found that providing individuals with information concerning task difficulty altered their expectations concerning their ability to improve performance. The comparative or normative information of the feedback message which conveys information on the task difficulty, such as how other people did on the task, is likely to influence the recipient's expectancy concerning his ability to respond to the feedback.

This feedback principle poses the requirement that normative data be collected in CGT over time in order to provide trainees with this "bench mark" of their own individual and group performance.

Feelings of Competency: The recipient's feelings of competency in regards to the target behavior can be enhanced by the feedback message. Some researchers have found that messages which encourage a continuation of past effective performance, or present alternative courses of action to correct "mistakes" are more effective than messages which do not contain these dimensions. Furthermore, Ilgen, et al. (1979) hypothesize that, in order to increase the recipient's feelings of competency, the feedback should add an increment of information to the information the individual already has. Information such as type, extent, and direction of errors helps the recipient focus his efforts and feel he will be able to perform the task better next time, and will motivate him to try harder and persist longer (Becker, 1978).

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